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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/816,092

04/01/2004

Kenneth Marks

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EXAMINER

MILLER, PATRICK L

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/816,092

Applicant(s)

MARKS ET AL.

Examiner

Patrick Miller

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7, 9-13 and 15-17 is/are rejected.
- 7) ☒ Claim(s) 4, 8 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The abstract of the disclosure is objected to because it contains the file name below the abstract text. Please delete. Correction is required. See MPEP § 608.01(b).

### *Claim Objections*

2. Claims 7 and 17 are objected to because of the following informalities: see bullet(s) below. Appropriate correction is required.
  - In claim 7, delete “can” and add an “s” to power.
  - Claim 17 recites a plurality of multi-motor controllers. However, claim 9 only recites a single multi-motor controller.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 5, 6, and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
  - Claims 5 and 12 use the term “miscellaneous control function card.” The Examiner cannot find support for this terminology in the specification and this term’s meaning is not apparent to the Examiner. Please clarify.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Cho et al (6,731,089).

- With respect to claim 1, Cho et al disclose a controller for controlling a plurality of motors in a fluid handling system (CAN is used in automobile systems, which handle fluid, e.g. fuel, air, etc.), comprising: a connector port that communicates with at least one sensor to obtain sensor data (Fig. 1, encoder is the sensor and is input into 'B' at the 'Encoder Input'); at least one digital signal processor (DSP) (Fig. 1, #10) and gate driver interface (Fig. 1, J1) that evaluates the sensor data and generates a control signal based on the sensor data (Fig. 1, #10 evaluates encoder signal and sends PWM control signal; see Fig. 4); and at least one commutation module in communication with at least one DSP and gate driver interface, wherein the at least one commutation module controls at least one motor based on the control signal (Fig. 1, #34).
- With respect to claim 7, the controller further comprises a local power supply for the motors (Fig. 1, 24 V power).

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palleggi et al (5,638,387).

- Palleggi et al disclose a controller for controlling a plurality of motors in a system, comprising: a connector port that communicates with at least one sensor to obtain sensor data (Fig. 8, input from encoders #s 30 and 31); at least one microprocessor and gate driver interface that evaluates the sensor data and generates a control signal based on the sensor data (Fig. 8, #s 53 and 54 evaluate data from encoders #s 30 and 31); and at least one commutation module in communication with at least one DSP and gate driver interface, wherein the at least one commutation module controls at least one motor based on the control signal (Fig. 8, #s 57 and 58).
- With respect to claim 9, Palleggi et al disclose a system comprising: a plurality of motors (Fig. #s 16 and 17); a plurality of devices associated with the plurality of motors (Fig. 8, load attached to motors (not shown)); a plurality of sensors that generate data corresponding to the operation of the plurality of devices (Fig. 8, heat probes #s 32 and 33 send data to #52); a multi-motor controller that controls the plurality of motors (Fig. 8, #52); the multi-motor controller having a

connector that communicates with at least one sensor to obtain sensor data (Fig. 8, #52 receives data from #s 32 and 33); a plurality of microcomputers and gate driver interfaces that evaluate the sensor data and generate a control signal based on the sensor data (Fig. 8, #s 53 and 54); and a plurality of commutation modules, each commutation module corresponding to one of the plurality of microprocessors and gate drivers interfaces, and where each commutation module controls at least one motor based on the control signal (Fig. 8, #s 57 and 58).

- With respect to claims 1 and 9, Palleggi et al do not disclose the microprocessor being a DSP. However, with respect to this feature, the Examiner takes Official Notice. It would have been obvious to one having ordinary skill in the art at the time of the invention that the microprocessor of Palleggi et al would be a digital signal processor (DSP) because DSPs provide the advantage of faster instruction processing.
  - With respect to claims 3 and 10, each of the motors has a corresponding microprocessor (now DSP) and gate driver interface and a corresponding commutation module (Fig. 8, #16 has #53 and #57 and #17 has #54 and #58).
6. Claims 1, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donnelly et al (6,812,656).
- Donnelly et al disclose a controller for controlling a plurality of motors in a fluid handling system, comprising: a connector port that communicates with at least one sensor to obtain sensor data (Fig. 1, controller receives inputs from #s 24, 20, 14, 22); at least one processor and gate driver interface that evaluates the sensor data and generates a control signal based on the sensor data (Fig. 1, controller

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controls the motor based on sensor inputs); and at least one commutation module in communication with at least one controller and gate driver interface, wherein the at least one commutation module controls at least one motor based on the control signal (Fig. 1, #36 communicates with the controller to driver the motors #12).

- Donnelly et al do not disclose the Programmable Logic Controller being a DSP. However, with respect to this feature, the Examiner takes Official Notice. It would have been obvious to one having ordinary skill in the art at the time of the invention that the Programmable Logic Controller of Donnelly et al would be a digital signal processor (DSP) because DSPs provide the advantage of faster instruction processing.
- With respect to claims 5 and 6, at least one of the motors is a variable speed binary-function motor (col. 2, ll. 39-46; DC motors are reversible (binary) and since PWM, variable speed), and wherein the controller further comprises a miscellaneous control function card to control the at least one binary-function motor (Fig. 1, Programmable Control Logic is on a separate control board).

7. Claims 1, 2, 5, 6, 7, 9, 11-13, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katagiri et al (5,619,111).

- With respect to claim 1, Katagiri et al disclose a controller for controlling a plurality of motors in a system, comprising: a connector port that communicates with at least one sensor to obtain sensor data (Fig. 4, #23 receives data from e1-e6); at least one microcomputer and gate driver interface that evaluates the sensor data and generates a control signal based on the sensor data (Fig. 4, #s 57 in each

- of #s 6, 7, and 8); and at least one commutation module in communication with at least one microcomputer and gate driver interface, wherein the at least one commutation module controls at least one motor based on the control signal (Fig. 4, #s 52 and 56 in each of #s 6, 7, and 8).
- With respect to claim 9, Katagiri et al disclose a system comprising: a plurality of motors (Fig. 4, M1-M6); a plurality of devices associated with the plurality of motors (Fig. 4, load attached to motors (not shown)); a plurality of sensors that generate data corresponding to the operation of the plurality of devices (Fig. 4, E1-E6); a multi-motor controller that controls the plurality of motors (Fig. 4, #9); the multi-motor controller having a connector that communicates with at least one sensor to obtain sensor data (Fig. 4, connector #23 receives sensor data e1-e6); a plurality of microcomputers and gate driver interfaces that evaluate the sensor data and generate a control signal based on the sensor data (Fig. 4, #s 57 in #s 6, 7, and 8, respectively); and a plurality of commutation modules, each commutation module corresponding to one of the plurality of DSP and gate drivers interfaces, and where each commutation module controls at least one motor based on the control signal (Fig. 4, #s 51 and 55 in #s 6, 7, and 8, respectively).
  - With respect to claims 1 and 9, Katagiri et al do not disclose the microcomputer being a DSP. However, with respect to this feature, the Examiner takes Official Notice. It would have been obvious to one having ordinary skill in the art at the time of the invention that the microprocessor of Katagiri et al would be a digital



signal processor (DSP) because DSPs provide the advantage of faster instruction processing.

- With respect to claim 2, each microcomputer (now DSP) and gate driver interface has a corresponding commutation module (Fig. 4, #57 has #52 in each of #s 6, 7, and 8).
- With respect to claim 7, a local power supply powers the motor (Fig. 4, #5 5V base drive circuit).
- With respect to claim 11, at least one of the plurality of motors shares one DSP and gate driver interface and one motor commutation module (Fig. 4, M1 and M2 share #57).
- With respect to claims 5, 6, 12 and 13, at least one of the plurality of motors is a binary-function, variable speed motor, and wherein the at least one commutation module controls said variable speed motor (col. 4, ll. 23-25; servo motors are reversible (binary) and are variable speed).
- With respect to claim 15, the system further comprises a system controller that controls operation of the plurality of motors according to an instruction from the multi-motor controller (Fig. 4, external setting device #26 communicates via #72 to #9; col. 4, ll. 28-31).
- With respect to claim 16, the system controller is connected to the multi-motor controller via a connector selected from the group consisting of a serial connector or an Ethernet connector (Fig. 7, #72 is a serial connector that connects #26 to #9).

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- With respect to claim 17, the system comprises a plurality of multi-motor controllers that are connected to the system controller (Fig. 7, shows a plurality of #9s [“stacked” boxes]).

*Allowable Subject Matter*

8. Claims 4, 8, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

- With respect to claim 4, the Prior Art discloses plural motor systems that share one DSP. However, the Prior Art does not disclose a controller with the limitations of claim 1, and where one of the plurality of motors shares one DSP and gate driver interface and one motor commutation module.
- With respect to claims 8 and 14, the Prior Art discloses switching to backup power supplies upon main power failure. However, the Prior Art does not disclose a controller with the limitations of claims 1 and 7 and 9, respectively, wherein the DSP and gate driver switches switch over to the DC backup power supply in the even of a main power failure.

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*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 571-272-2070. The examiner can normally be reached on M-F, 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 41. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

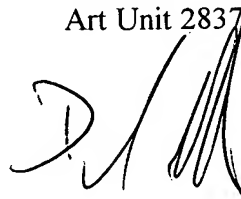
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pm  
March 21, 2005



Patrick Miller  
Examiner  
Art Unit 2837



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